

REMARKS

Claims 1-46 are pending in the application. Claims 1-3, 12, 14-16, 25, 27-29, 38, and 40-42 are rejected. Claims 4-11, 13, 17-24, 26, 30-37, 39 and 43-46 are objected to.

35 USC §102(a)

Claims 1-3, 12, 14-16, and 25 are rejected under 35 U.S.C. §102(a) as being anticipated by Albertsen et al (AP-S International Symposium on Antennas and Propagation, Vol. 1, 17 June 1985, pages 357-360). The Office Action states that Albertsen at pages 357 and 358 teaches: (1) “providing an initial configuration of reflectors shaped by an iterative procedure”, (2) “optimizing radiation patterns of the feeds through an iterative process”, and (3) “optimizing reflector surface shapes through iterative process”.

Albertsen et al does not disclose or even suggest the step of optimising radiation patterns of the feeds in an iterative process for satisfying required upper and lower bounds for gain radiation patterns of beams of the multibeam antenna.

Albertsen et al does not disclose or even suggest the step of optimising surface shapes and sizes of the reflectors in an iterative process for satisfying the required upper and lower bounds for the gain radiation patterns of the beams of the multibeam antenna.

The present patent specification discusses the Albertsen paper at pages 6-7. Further, Fig. 6 indicates in step 612 that the initial reflector shaping step may use the Albertsen procedure. Albertsen describes a reflector shaping to establish radiation patterns, but there is no guarantee that a useful design results. For example, the Albertsen procedure does not require any specification on the radiation patterns. This approach is purely geometrical and does not take into account the electromagnetic characteristics of the antenna and the feeds, or the practical requirements. Albertsen does not use pattern shaping of the feeds through any part of his process.

Fig. 6 clearly shows the differences the relationship between Albertsen and the claimed invention defined by claim 1, where the first step of claim 1 reads on step 612 of Fig. 6, the second step reads on step 620, and the third step reads on step 622. The Albertsen procedure is only an initial step and does not necessarily lead to an antenna with useful characteristics for practical applications such as satellite communications.

The latter two steps not taught or even suggested by the Albertsen procedure contribute to satisfying all of the design requirements (including requirements for the gain radiation patterns of the beams of the multibeam antenna) that the overall procedure addresses. It is therefore submitted that independent claim 1 is in condition for allowance.

Further, claims 2, 3, and 12 are dependent claims of an allowable base claim and therefore are in condition for allowance themselves.

Claim 12 defines an apparatus as its subject matter tracking closely on the method defined by independent claim 1. Accordingly, is submitted that the arguments made in respect of independent claim 1 apply equally to claim 12, and therefore independent claim 12 is in condition for allowance. Likewise, claims 13-16 and 25 are dependent claims of an allowable base claim and therefore are in condition for allowance themselves.

35 USC §103

Claims 27-29, 38 and 40-42 have been rejected under 35 USC 103(a) as being unpatentable over Albertsen et al.

Regarding independent claim 27, the Office Action states that Albertsen fails to explicitly mention that the designing process can be done through a computer program, but it would have been obvious to one skilled in the art to employ the Albertsen design process through a computer program.

Claim 27 defines a computer program product as its subject matter tracking closely on the method defined by independent claim 1. Accordingly, is submitted that the arguments made in respect of independent claim 1 apply equally to claim 27, and therefore independent claim 27 is in condition for allowance. Likewise, claims 28, 29 and 38 and 25 are dependent claims of an allowable base claim and therefore are in condition for allowance themselves.

Regarding independent claim 40, the Office Action states that Albertsen fails to explicitly mention that the designing process can be done through a storage unit for storing a computer program and processing unit, but it would have been obvious to one skilled in the art to employ the Albertsen design process through a computer program and processing.

Claim 40 defines an apparatus as its subject matter tracking closely on the method defined by independent claim 1. Accordingly, is submitted that the arguments made in respect of independent claim 1 apply equally to claim 40, and therefore independent claim 40 is in condition for allowance. Likewise, claims 41 and 42 are dependent claims of an allowable base claim and therefore are in condition for allowance themselves.

Allowable Subject Matter

Claims 4-11, 13, 17-24, 26, 30-37, 39 and 43-46 are objected to as being dependent upon a rejected base claim. However, the Office Action acknowledges that these dependent claims define patentable subject matter if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

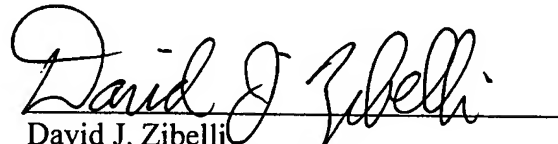
The Applicants submit that each of these dependent claims is dependent upon an allowable base claims for the reasons set forth hereinbefore and therefore is in condition for allowance.

In view of the above submitted amendments and remarks, it is respectfully submitted that all of the claims of the present application are allowable over the cited references. A Notice of Allowance is earnestly solicited.

The Examiner is invited to contact the undersigned at (202) 220-4200 to discuss any matter concerning this application. The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. § 1.16 or § 1.17 to Deposit Account No. 11-0600.

Respectfully submitted,

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Dated: June 30, 2005

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